<u>CLAIMS:</u>

1.   A method for encoding scalable video comprising the steps of:
forming (1190) a motion compensated full resolution prediction;
combining (1105) the motion compensated full resolution prediction from an
image block to form a prediction residual;
downsampling (1112) the prediction residual to form a low resolution
downsampled prediction residual; and
coding (1115) the low resolution downsampled prediction residual.

2.   A spatial scalable video encoder for encoding an image block,
comprising:
a motion compensator (1190) for forming a motion compensated full resolution
prediction;
a subtractor (1105), in signal communication with said motion compensator,
for subtracting the motion compensated full resolution prediction from the image
block to form a prediction residual;
a downsampler (1112), in signal communication with said subtractor, for
downsampling the prediction residual to form a low resolution downsampled
prediction residual; and
a transformer/quantizer (1115), in signal communication with said
downsampler, for coding the low resolution downsampled prediction residual.

3.   The spatial scalable video encoder of claim 2, further comprising:
an inverse quantizer/inverse transformer (1125), in signal communication with
said transformer/quantizer, for inverse quantizing and inverse transforming the coded
low resolution downsampled prediction residual to form a coded prediction residual;
an upsampler (1155), in signal communication with said inverse
quantizer/inverse transformer, for upsampling the coded prediction residual to form a
coded upsampled prediction residual; and
an adder (1199), in signal communication with said upsampler, for adding the
upsampled prediction residual to a motion compensated full resolution prediction to
form a sum signal.

4.   The spatial scalable video encoder of claim 3, further comprising an entropy coder (1120), in signal communication with said transformer/quantizer, for encoding the coded low resolution downsampled prediction residual into a base layer bitstream.

5.   The spatial scalable video encoder of claim 3, further comprising:
a subtractor (1160), in signal communication with said adder (1199), for subtracting the sum signal from the input image block to form a difference signal; and
another quantizer/transformer (1170), in signal communication with said subtractor, for forming a full resolution enhancement layer error signal from the difference signal.

6.   The spatial scalable video encoder of claim 5, further comprising:
an entropy coder (1120), in signal communication with said quantizer/transformer, for encoding the coded downsampled prediction residual into a base layer bitstream; and
an entropy coder (1175), in signal communication with said quantizer/transformer, for encoding the full resolution enhancement layer error signal into a enhancement layer bitstream.

7.   The spatial scalable video encoder of claim 6, wherein the enhancement layer bitstream is encoded only for intra-coded slices in the base layer bitstream.

8.   An apparatus for encoding scalable video, comprising:
means for forming (1190) a motion compensated full resolution prediction;
means for combining (1105) the motion compensated full resolution prediction from an image block to form a prediction residual;
means for downsampling (1112) the prediction residual to form a low resolution downsampled prediction residual; and
means for coding (1115) the low resolution downsampled prediction residual.

9.   A method for encoding an image block, comprising the steps of:

forming (1325) a motion compensated full resolution prediction;

subtracting (1330) the motion compensated full resolution prediction from the image block to form a prediction residual;

downsampling (1335) the prediction residual to form a low resolution downsampled prediction residual; and

coding (1345) the low resolution downsampled prediction residual to form a coded low resolution downsampled prediction residual.

10. The method of claim 9, further comprising the steps of:

inverse quantizing and inverse transforming (1350) the coded low resolution downsampled prediction residual to form a coded prediction residual;

upsampling (1355) the coded prediction residual to form a coded upsampled prediction residual; and

adding (1360) the upsampled prediction residual to a motion compensated full resolution prediction to form a sum signal.

11. The method of claim 10, further comprising the step of encoding (1345) the coded low resolution downsampled prediction residual into a base layer bitstream.

12. The spatial scalable video encoder of claim 10, further comprising the steps of:

subtracting (1365) the sum signal from the input image block to form a difference signal; and

quantizing and transforming (1370) the difference signal to form a full resolution enhancement layer error signal.

13. The method of claim 12, further comprising the steps of:

encoding (1345) the coded downsampled prediction residual into a base layer bitstream; and

encoding (1375) the full resolution enhancement layer error signal into a enhancement layer bitstream.

14.   The method of claim 13, wherein the enhancement layer bitstream is encoded only for intra-coded slices in the base layer bitstream.

15.   A scalable compressed video signal data structure formed by a method comprising the steps of:

forming (1325) a motion compensated full resolution prediction;

subtracting (1330) the motion compensated full resolution prediction from the image block to form a prediction residual;

downsampling (1335) the prediction residual to form a low resolution downsampled prediction residual; and

coding (1345) the low resolution downsampled prediction residual to form a coded low resolution downsampled prediction residual.